REMARKS

Applicants request the Examiner to enter this Preliminary Amendment and thereafter pass this case on to allowance.

Amended claim 1 and new claims 9 and 10 find basis in the specification throughout.

The present claimed inventions pertain to a heat-sensitive stencil sheet which causes no jamming, or at least reduces incidence of jamming, in a stencil printing machine during feeding and no or at least reduced creasing, while providing sharp images. *See, e.g.*, specification, page 1.

In seeking to solve problems in the art, the art has proposed a number of solutions. Papers of or non-woven fabrics have been proposed made from a mixture of synthetic and natural fibers have been offered, specification, page 1. But these proposals caused other problems, including creasing and jamming. Efforts to resolve the latter problems were not successfully. Specification at page 2.

Applicants focused on these problems, and as reported in the specification at page 2, and discovered that a heat-sensitive stencil sheet satisfying a specific residual torque is excellent.

Applicants' invention concerns a heat-sensitive stencil sheet that includes a laminate of a thermoplastic resin film and a porous fibrous substrate (claim 1), which in one embodiment is mainly composed of synthetic fibers (claim 10). Specification, throughout, noting pages 1-2. This heat-sensitive stencil sheet satisfies the relationship $0.150 \leq$ T-H wherein T means an arithmetic average value (g · cm/cm) of absolute values of KES bending torque in lengthwise direction of the stencil sheet at curvatures of +2.3 and -2.3 (cm^{-1}), H means a bending hysteresis (g · cm/cm), and T-H means a residual torque (g · cm/cm). It is indicative of the physical entanglement of the fibers.

Applicants specification throughout, but particularly at page 3, discloses the residual torque (T-H) as a numerical value relating to bending characteristics of the stencil sheet. Residual torque specifies a numerical value relating to recovery from bending, and the lengthwise direction means the running direction of the stencil sheet fed to the printing machine.

Also at page 3, the specification discloses KES is an abbreviation of KAWABATA'S EVALUATION SYSTEM FOR FABRICS. The system, i.e. method, is widely employed as a method for measurement of physical quantity of the texture of woven or knitted fabrics, which was devised by Prof. Sueo Kawabata of the Kyoto University in Japan.

Applicants' specification at page 3 discloses the creasing mechanism of stencil sheets at the time of being wound around or loaded on a drum has been considered by Appellants . They consider that when the stencil sheet is wound around the circumferential surface of the rotated printing drum to load it on the drum, while it is pressed by a press roller, bubbles can and do sometimes form in the portion between the stencil sheet and the surface of the printing drum in the area between the back end portion of the stencil sheet and the press roller. In the region where bubbles are present, the stencil sheet is apart and raised from the surface of the printing drum.

As Applicants have discovered, when the printing drum is further rotated, the bubbles gather in the vicinity of the press roller to form large bubbles and the portion where the stencil sheet is apart and raised from the surface of the printing drum becomes larger. The raised stencil sheet is finally buckled and bent, and this bent portions form creases. Specification throughout, but note page 3 in particular.

In the above-mentioned creasing mechanism, formation of creases of the stencil sheet has a close relation with the bending characteristics (buckling characteristics) of the stencil sheet. That is, the bending torque (bending stress) generated when the stencil sheet is raised increases

with further raising of the stencil sheet, but bending hysteresis (loss of stress) at the time of recovery from bending also gradually increases. Specification at page 4.

When the raised stencil sheet is buckled as mentioned above, the bending hysteresis tends to become extremely great, and the bending torque tends to become extremely small. That is, whether the buckling readily occurs or not can be judged by the property values of the bending torque and the bending hysteresis. However, these property values are strongly affected by the shape and the basis weight of the substrate. For example, a stencil sheet having a large basis weight is great in bending hysteresis so that a large loss of bending torque is caused, but since the bending torque is inherently great, the bending torque is still large even if the loss is deducted. Specification, pages 3-4.

According to Applicants, "residual torque" is a value obtained by deducting "bending hysteresis" from "bending torque" of the stencil sheet can be employed as an indication of whether the creases readily occur or not. Specification, page 4.

According to Applicants' specification at pages 4-5, the conventional techniques which might employ only the KES bending rigidity value B (average bending rigidity) as the indication, even if the KES bending rigidity value B is in a specified range, the residual torque can still be smaller than the above limitation owing to the loss of balance of the bending torque or the bending hysteresis depending on a state of dispersion or lamination of fibers of the substrate. In this case, there is still the problem of creasing and the like. Indeed, the stencil sheet can buckle and jam the stencil printing apparatus because the conventional stencil sheet exhibits weak recovery from the initial buckling, which makes running the sheets well neigh impossible, forms creases, and thus ultimately deteriorates the quality of print.

On the other hand, the residual torque employed as an indication in Applicants' claimed inventions, is a value including the influence of dispersion or lamination state of fibers of the

substrate, buckling of the stencil sheet can be effectively inhibited, and failure in feeding of stencil sheets and generation of creases can be effectively inhibited.

Thus, according to Applicants' inventions, even if raising of a stencil sheet (bending of a stencil sheet) occurs due to the bubbles at the time of winding of the stencil sheet around the drum as mentioned above, when the residual torque (T-H) in the lengthwise direction which is the same as the feeding direction of the stencil sheet is 0.150 (g · cm/cm) or more, preferably 0.180 (g · m/cm) or more, the stencil sheet has a power to recover even when it is nearly buckled, and thus no creases are formed. Specification, page 5.

Furthermore, as a result of investigation on running mechanism of the stencil sheet in the printing machine, the possibility of occurrence of the jamming of the stencil sheet that is being carried can be determined by using the value of the residual torque (T-H) as an indication as in the case of the creasing mechanism. That is, when the residual torque (T-H) is less than 0.150 (g · m/cm), the stencil sheet is buckled in the running route to result in failure of feeding. Specification, page 6.

Appellants also discovered that the KES bending rigidity, such as the lengthwise or cross wise direction, such as in claims 4, 5 and 6, offers advantages. According to the specification, the KES bending rigidity value (B of the heat-sensitive stencil sheet in lengthwise or crosswise direction is preferably 0.02 gf · cm^2/cm or more. If the KES bending rigidity value B is less than 0.02 gf · cm^2/cm, the sheet is insufficient in so-called nerve, and when the stencil sheet is wound around a printing drum, creases in the form of earthworm are formed. As a result, print image is distorted or ink becomes faded in the creased portions and thus causes defects in the prints. Specification, page 6.

As reported in the specification, Appellants furthermore discovered the tensile strength of the heat-sensitive stencil sheet in lengthwise direction is preferably 0.3 kgf/cm or more. A tension is applied to the stencil sheet in running direction in the printing machine. If the tensile

strength of the stencil sheet in lengthwise direction is less than 0.3 kgf/cm, strength of the stencil sheet is insufficient and cannot run smoothly and in an extreme case the stencil sheet is broken. This advantageous feature is recited in claims 7 and 8.

The previously pending prior art rejections, re-stated as issues, are:

Whether each of claims 1 and 4-8 defines a novel invention over U.S. Patent No. 6,025,286 to Kawatsu et al.?

Stated another way, Applicants respectfully submit that the alleged inherency rejection under 35 U.S.C. §102(e) over the Kawatsu et al. reference be reconsidered and withdrawn.

Applicants respectfully offer their surmise that allegations of inherency rest on a mis-understanding or mis-communication regarding what the reference really describes and what Appellants regard as their claimed inventions

The Traverse -

Applicants' claims define novel inventions over the applied Kawatsu et al. reference. The inherency rejection is respectfully traversed as to Claims 1 and 4-8. Claims 4-8 are also novel for additional reasons detailed below.

A. The prior art does not inherently disclose the structural features in claim 1.

Claim 1 concerns a physical, tangible object, namely a heat-sensitive stencil sheet. The claimed stencil sheet comprises a laminate of a thermoplastic resin film and a porous fibrous substrate. The stencil sheet has a certain structure, including fibers in the porous substrate in a certain tangled state, and this *structural* feature is defined in claim 1 by reciting "said stencil sheet satisfying $0.150 \leq$ T-H wherein T means an arithmetic average value ($g \cdot cm/cm$) of absolute values of KES bending torque in [the] lengthwise direction of the stencil sheet at curvatures of

+2.3 and -2.3 (cm^{-1}), H means a bending hysteresis (g · cm/cm), and T-H means a residual torque (g · cm/cm)."

The Examiner's thesis is that "[s]ince the prior art teaches all of Applicant's claimed compositional and positional [sic] limitations, the reference it is inherent that the prior art article functions in the same manner as claimed by Applicants." Advisory Action, August 14, 2001, page 2. The Examiner's stated rationale for the inherency rejection under 35 U.S.C. §102(e) is that the cited prior art Kawatsu et al. references "uses the same materials as the current invention" and therefore "the prior art ... possesses the claimed properties (i.e., tensile strength, a value of T-H greater than or equal to 0.150)." Office Action, March 27, 2001, page 2.

Allegations of inherency require strict scrutiny as the legal standard imposes a rigorous evidentiary burden on the Examiner. The Examiner must demonstrate that in fact or by cogent technical reasoning that the allegedly inherent characteristic *necessarily* flows by practicing the alleged prior art. *See, e.g.*, In re King, 801 F.2d 1324 (Fed. Cir. 1986); In re Oelrich, 666 F.2d 578 (CCPA 1978); Hansgirg v. Kemmer, 102 F.2d 212 (CCPA 1940); Ex parte Levy, 17 USPQ2d 1461 (BOPI 1990). As the Federal Circuit has stressed, "inherency ... may not be established by probabilities or possibilities." Continental Can Co. USA v. Monsanto Co., 948 F.2d 1264, 1268-69 (Fed. Cir. 1991). Thus, assertions or intimations that a result "may" happen are legally and factually inadequate. *See, e.g.*, Continental Can, *supra*; Oelrich, *supra*.

The record lacks citation to any specific passage in the Kawatsu et al. reference that demonstrates that the allegedly inherent characteristic, residual torque as claimed, inevitably, necessarily, inherently is a characteristic of the closest product described in the patent upon which Examiner relies. The Examiner has not cited such a passage. Applicants have not received an Examiner's Declaration.

Accordingly, Applicants respectfully submit the record lacks an evidentiary basis upon which to invoke and maintain an inherency rejection. The record does not include evidence that a

person skilled in the art would have recognized the applied prior art reference necessarily, inevitably, inherently disclosed the presently claimed invention, including its definition of residual torque, regardless of whether residual torque is regarded as characterizing a structural limitation or whether it is a new result effective variable. This lack of recognition in the prior art resulted in an inherency anticipation being reversed in Elan Pharmaceuticals v. Mayo Clinic, Appeal No. 00-1467 (Fed. Cir. August 30, 2002).

B. The Comparative Example contravenes the assumptions underlying the inherency anticipation rejection.

Evidence in the application as filed contravenes the premises implicit in the alleged inherency rejection. The Examiner's attention is respectfully directed to Comparative Example 1 in the present specification.

The Examiner is invited to consider the Comparative Example 1 against the Kawatsu reference. Comparative Example 1 meets the properties according to the Kawatsu reference. The Examiner is respectfully urged to review Table 1, page 20, in the specification versus Kawatsu at column 3, lines 63-67 (film thickness of 0.1 to 5μm); column 4, lines 5-8 (average files diameter of 0.5 to 20 μm); and column 4, lines 14-17 (basis weight of fibers of 1 to 20 g/m^2, preferably 3 to 14 g/m^2).

The Comparative Example 1 product creased on the drum as seen from Table 1, page 21, herein.

Nonetheless, the Examiner opines that parameters in the Kawatsu et al. reference - a single product is not cited - , including fiber orientation mean it discloses the residual torque. As seen from the record, the orientation parameters have nothing to do with the residual torque (T-H); the former is required to improve performation sensitivity and printability as described in Kawatsu et al. (particularly Table 2), whereas the latter is important according to the present invention to avoid creasing of the stencil sheet on the printing drum.

Still further refutation lies with the general prior art perception that the greater the orientation parameter (R2) of the fibers of the porous substrate, the greater the tensile strength of the stencil sheet becomes. The prior art perception would mean the stencil sheet seems to be improved in runability as shown in Table 2 in the Kawatsu et al. reference. However, this does *not inevitably, necessarily* inherently lead to Applicants' residual torque (T-H). For example, the stencil sheet of Comparative Example 1of the present specification has a tensile strength of 0.38 kgf/cm which is equivalent to or greater than the stencil sheets of Examples 2 and 3 of the present specification, as shown in page 20, Table 1 of the present specification. However, the Comparative Example 1 shows a residual torque (T-H) considerably lower than the stencil sheets of the Examples 2 and 3, as shown in page 21, Table 1 of the present specification. This demonstrates that Applicants' residual torque, or avoid creasing on drum, is not inherently, necessarily inherent in or even improved by either a greater orientation parameter (R2) or a greater stencil strength. (Applicants considered that the residual torque would be influenced by the interlaced state of the fibers of the porous substrate rather than the state of single fibers such as the orientation parameter (R2).)

Therefore, Applicants' original specification included evidence the Kawatsu et al. reference does not teach the same product as claimed herein. The Comparative Example reports that its product did not possess the claimed characteristics, including residual torque, whereby it was not crease-resistant on the drum.

Applicants therefore submit that their present claimed invention is not anticipated by Kawatsu et al., nor would it have been obvious over the same.

C. The Advisory Action Expresses A Misunderstanding Over The Rule 132 Declaration and The Kawatsu reference.

The Rule 132 Declaration from Nakao shows "Kawatsu parameters", namely, a range of thickness of the film and ranges of average diameter and basis weight of fibers of the support, are

not dependent upon nor necessarily functional prior art equivalents to the claimed residual torque. The Declaration of Nakao concerns Samples Nos. 1-9 prepared in a manner described in the present specification, which means they were not *per se* prior art. *Cf.*, Elan Pharmaceticals, *supra* (error to use patentee's specification as alleged admission for inherency). Thus, the Declaration of Nakao is further evidentiary support showing the claimed residual torque is a parameter which defines a structure of the stencil sheet which had not been identified by prior art, and would not necessarily be inherent by the prior art.

The Advisory Action, erroneously states the Rule 132 Declaration:

> show that Samples 7, 8 and 9 satisfy the claimed residual torque, KES binding rigidity, value B, and tensile strength. Therefore, the claimed invention reads upon the disclosed prior art and claims 1 and 4-8 stand rejected.

Advisory Action, April 24, 2002, page 2. Examiner contends that Samples 7, 8 and 9 of the previously-filed Declaration satisfy the claimed residual torque and so on, and thus the claimed invention reads upon the disclosed prior art. However, Samples 7, 8 and 9 are not prior art.

Indeed, the Declaration of Nakao shows that the claimed residual torque (T-H) is not dependent upon the known parameters of stencil sheets and also reflects a structure of the stencil sheets. The Declaration of Nakao details the factual basis and conclusions at page 3.

Kawatsu et al. discloses a stencil sheet which is a laminate of a fibrous support and a polyester film, and also discloses a range of thickness of the film, ranges of average diameter and basis weight of fibers of the support. By analogy to the Declaration of Nakao, such as the Graphs 1-3, it follows that the Kawatsu et al. parameters are not predictive of, are not dependent upon, and do not necessarily inherently produce Applicants' claimed product with the residual torque (T-H).

According to the Applicants, the residual torque (T-H) reflects a structure of stencil sheets, more specifically, tangling state of the fibers of the porous support of the stencil sheet, as shown in the photographs of the Declaration. If the fibers are bonded to each other so as not to be easily untangled, the stencil sheet can recover from bending (as shown in the photograph of Sample 7 of the Declaration) so that no creasing on printing drums occurs. This phenomenon is described from page 3, line 9 through page 4, line 21 of the present specification.

From the above and evidence of record, Applicants respectfully suggest the claimed heat-sensitive stencil sheet includes the recitation of residual torque (T-H) as a structural limitation and it's <u>different</u> from the product and the parameters generically disclosed in the cited Kawatsu reference.

C. <u>Claims 1 and 4-8 are Novel</u>

Claims 1 and 4-8 are novel over the cited reference because the inherency rejection should be withdrawn. Dependent claims 4, 5, 6, 7 and 8 also separately define a novel inventions over the Kawatsu reference.

Claim 4 depends from claim 1 and claims 5, 6 and 8 depend from claim 4. Claims 5, 6 and 8 are novel for the reasons stated as to claim 4. Claim 4 defines a novel invention for the reasons stated above as to claim 1. In addition, the reference does not disclose or teach the further requirement of a KES bending rigidity value B per unit length of 0.02 gf cm^2/cm or more, in combination with the residual torque as in claim 1. The reference does not teach or disclose the residual torque, the values for the residual torque, nor a relationship, of any, between residual torque and any other parameter.

Claim 7 depends from claim 1 and states the stencil sheet has a tensile strength in the lengthwise direction of 0.3 Kgf/cm or more. The cited reference does not inherently or expressly describe structure as claimed herein, nor residual torque as a means to define the structure. The

tensile strength in the lengthwise direction is in addition to the residual torque in claim 1. Neither are described or suggested in combination in the reference.

Conclusion

Applicants respectfully request the Examiner to reconsider and withdraw the prior art rejection of claims 1 and 4-8 under 35 U.S.C. §102(e) over the Kuwatsu reference. Applicants further respectfully submit that their claims are in condition for allowance.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

By: ______________________

Kendrew H. Colton
Registration No. 30,368
Telephone No. (202) 419-7015
Facsimile No. (202) 419-7007

Fitch, Even, Tabin & Flannery
1801 K Street, N.W., Suite 401L
Washington, D.C. 20006-1201

APPENDIX

Amendments to the claims:

1. A heat-sensitive stencil sheet, which comprises a laminate of a thermoplastic resin film and a fiber-containing porous substrate [mainly composed of synthetic fibers], said stencil sheet satisfying $0.150 \leq$ T-H wherein T means an arithmetic average value (g · cm/cm) of absolute values of KES bending torque in lengthwise direction of the stencil sheet at curvatures of +2.3 and -2.3 (cm^{-1}), H means a bending hysteresis (g · cm/cm), and T-H means a residual torque (g · cm/cm).

New claims 9 and10 are added.